

Species Tag:	53001	Species Name:	C2H3CN
Version:	3		Acrylonitrile,
Date:	Oct. 1996		ground state, $\nu_{11} = 1$
Contributor:	H. S. P. Müller J. C. Pearson		and $\nu_{15} = 1$
Lines Listed:	75697	Q(300.0)=	119380.376
Freq. (GHz) <	2000	Q(225.0)=	68141.227
Max. J:	99	Q(150.0)=	31738.832
LOGSTR0=	-10.0	Q(75.00)=	9958.401
LOGSTR1=	-9.0	Q(37.50)=	3481.779
Isotope Corr.:	0	Q(18.75)=	1232.852
Egy. ( $\text{cm}^{-1}$ ) >	0.0, 239, 340	Q(9.375)=	437.499
$\mu_a$ =	3.815	A=	49850.697
$\mu_b$ =	0.894	B=	4971.1636
$\mu_c$ =		C=	4513.8773

The experimental measurements were analyzed using the methods described in W. H. Kirchhoff, 1972, J. Mol. Spect. **41**, 333. The measurements were taken from: (1) C. C. Costain and B. P. Stoicheff, 1959, J. Chem. Phys. **30**, 777; (2) M. C. L. Gerry and G. Winnewisser, 1973, J. Mol. Spect. **48**, 1; (3) M. C. L. Gerry, K. Yamada, and G. Winnewisser, 1979, J. Phys. Chem. Ref. Data **8**, 107; (4) G. Cazzoli and Z. Kisiel, 1988, J. Mol. Spect. **130**, 303; (5) M. Stolze and D. H. Sutter, 1985, Z. Naturforsch. **40a**, 998; (6) J. Demaison, J. Cosléou, R. Bocquet, and A. G. Lesarri, 1994, J. Mol. Spect. **167**, 400; (7) O. I. Baskakov, S. F. Dyubko, V. V. Ilyushin, M. N. Efimenko, V. A. Efremov, S. V. Podnos, and E. A. Alekseev, (1997) J. Mol. Spect. **179**, 94; and J. M. Colmont, G. Włodarczak, D. Priem, H. S. P. Müller, E. H. Tien, R. J. Richards, and M. C. L. Gerry, 1997, J. Mol. Spect. **181**, .

For the ground vibrational state  $^{14}\text{N}$  quadrupole splittings have been included in the catalog where they have been resolved experimentally; see e. g. (5), (7), (8).

The partition function given here includes the spin-multiplicity of the  $^{14}\text{N}$  nucleus as well as the two low lying vibrational states.

The dipole moment is from (5). The ground state dipole moment was used for the excited states.

The vibrational states are 0 = ground state, 1 = in plane CCN bend,  $\nu_{11} = 1$ , at  $239 \text{ cm}^{-1}$  and 2 = CCN out of plane bend,  $\nu_{15} = 1$ , at  $340 \text{ cm}^{-1}$ .